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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,872	06/25/2003	John W. Marshall	112025-0516	3020

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EXAMINER	
NGUYEN, DUSTIN	
ART UNIT	PAPER NUMBER
2454	
MAIL DATE	DELIVERY MODE
08/17/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/603,872	MARSHALL ET AL.	
	Examiner	Art Unit	
	DUSTIN NGUYEN	2454	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 13-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6,17,27,33 and 34* is/are allowed.

6)☒ Claim(s) *1-5,7-10,13-16,18-26 and 28-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-10 and 13-34 are presented for examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/16/2010 has been entered.

Response to Arguments

3. Applicant's arguments filed 07/16/2010 have been fully considered but they are not persuasive.

4. As per remarks, Applicants' argued that (1) Karol lacks any mention of a context memory internal to a forwarding engine and an output buffer of the forwarding engine, since incoming cell 110 and outgoing cell 140 are not hardware structures.

5. As to point (1), Examiner respectfully disagrees since it would have been obvious to a person of ordinary skill in the art to realize that packet or cell in communication system is being maintained or stored at storing unit, i.e. buffer, queue. In addition, Karol specifically discloses the incoming cell 110 and the outgoing cell 140 are both being stored at the input and output ports of the switch [i.e. hardware interface] [col 3, lines 42-45; col 8, lines 7-11]. Therefore, incoming or outgoing cells are being stored or maintained in hardware structure.

6. As per remarks, Applicants' argued that (2) Karol simply envisions "real-time" processing to be processing that is sufficiently fast to keep pace with the throughtput rate of the switch, and does not imply by the term that data is changed while it is being transferred between a context memory internal to a forwarding engine and an output buffer of the forwarding engine.

7. As to point (2), Examiner respectfully disagrees since Karol clearly states a packet switch for real time processing of incoming and outgoing packets [claim 1]. In addition, Karol teaches the hardware of a packet switch and the combine function is executed in real time obviating the need to go up and back down the protocol stack at the intermediate combining switch center, and implementation in hardware allows high throughput and low delay by processing the cells in real time [col 7, lines 43-55].

8. As per remarks, Applicants argued that (3) Karol lacks any mention of holding one or more commands and not performing the operations associated with the one or more commands until initiation of a transfer of packet header data.

9. As to point (3), Karol discloses a computation is performed in ALU 130, specifically, ALU 130 sets and passes flags to flag control unit 150 based on the results of the computation, and depending on the flag control unit 150, outgoing cell 140 may be deleted or updated with the result [col 2, lines 61-col 3, lines 9]. So, it is clearly teaches the flag control unit maintains or stores flags to be performed on the cell, and as such, Karol clearly teaches the claimed limitation of holding one or more commands.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 13, 20, 22-24 and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Karol et al. [US Patent No 6,122,275].

12. As per claim 1, Karol discloses the invention as claimed including a method for modifying packet header data transferred from a context memory internal to a forwarding

engine to an output buffer of the forwarding engine [i.e. perform function on incoming cell and output on outgoing cell] [Figure 1; Abstract; col 1, lines 63-65], the method comprising the steps of:

reading one or more instructions, by a processor of the forwarding engine, each instruction indicating an operation to modify the packet header data [i.e. opcode control circuit selects where opcode will be accepted from incoming cell or from look up table] [160, Figure 1; and col 3, lines 15-18];

generating, in response to the one or more instructions, one or more commands wherein each command is associated with the operation to modify the packet header data [i.e. opcode control circuit generates ALU control word] [col 3, lines 18-22; and claim 3];

placing the commands in a data structure [i.e. ALU control word] [col 2, lines 61-65] ;

initiating a transfer of the packet header data from the context memory internal to the forwarding engine to the output buffer of the forwarding engine [i.e. real time processing of incoming and outgoing packets] [Abstract; col 7, lines 46-55; and claim 1]; and

performing, by a data mover in the forwarding engine coupled to the context memory and the output buffer and operating independently of the processor, the operations associated with the one or more commands contained in the data structure to modify the packet header data as directed by the one or more commands while the packet header data is being transferred from the context memory of the forwarding engine to the output buffer of the forwarding engine [i.e. ALU circuit performs computation and updates with result, outgoing cell may be deleted or updated with the result] [130, Figure 1; col 2, lines 63-col 3, lines 9; col 4, lines 35-42; and claim 3].

13. As per claim 2, Karol discloses acquiring the packet header data from the context memory internal to the forwarding engine [110, Figures 1 and 3; and col 2, lines 50-55].

14. As per claim 3, Karol discloses generating a bit mask associated with the acquired packet header data; and transferring the bit mask and the acquired packet header data to the output buffer of the forwarding engine [i.e. mask field] [col 6, lines 1-13].

15. As per claim 13, it is rejected for similar reasons as stated above in claim 1.

16. As per claim 20, it is rejected for similar reasons as stated above in claim 3.

17. As per claims 22-24, they are rejected for similar reasons as stated above in claims 1-3.

18. As per claims 28-30, they are rejected for similar reasons as stated above in claims 1-3.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 4, 7, 9, 10, 14, 15, 18, 21, 25 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karol et al. [US Patent No 6,122, 275], in view of Henderson et al. [US Patent Application No 2004/0042490].

21. As per claim 4, Karol does not specifically disclose wherein the data structure comprises one or more entries wherein each entry is associated with a command and the entry contains information associated with a range of addresses and an operation code that are associated with the command. Henderson discloses wherein the data structure comprises one or more entries wherein each entry is associated with a command and the entry contains information associated with a range of addresses and an operation code that are associated with the command [Figures 6 and 7; and paragraphs 0049, 0054 and 0055]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Karol and Henderson because the teaching of Henderson would enable a more efficient and adaptive system for processing packet [Henderson, paragraph 0003].

22. As per claim 7, Henderson discloses wherein each entry contains a length and a source address associated with the command [i.e. start of edit and size of edit] [Figure 6; and paragraph 0049].

23. As per claim 9, Henderson discloses wherein the data structure is a table [Figure 7; and paragraph 0007].

24. As per claim 10, Henderson discloses clearing the data structure [i.e. packet context can be cleared] [paragraphs 0039 and 0055].

25. As per claim 14, it is rejected for similar reasons as stated above in claim 9.

26. As per claim 15, it is rejected for similar reasons as stated above in claim 4.

27. As per claim 18, it is rejected for similar reasons as stated above in claim 7.

28. As per claim 21, Henderson discloses wherein the output buffer comprises: data steering logic configured to use the bit mask to identify valid data contained in the transferred packet header data; a working register coupled to the data steering logic and configured to hold the valid packet header data transferred from the data steering logic; and an output queue coupled to the working register and configured to hold the valid packet header data transferred from the working register [Figures 10 and 11; and paragraphs 0041 and 0080-0086].

29. As per claim 25, it is rejected for similar reasons as stated above in claim 4.

30. As per claim 31, it is rejected for similar reasons as stated above in claim 4.

31. Claims 5, 16, 26, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karol et al. [US Patent No 6,122,275], in view of Henderson et al. [US Patent Application No 2004/0042490], and further in view of Ueno [US Patent Application No 2002/0009050].

32. As per claim 5, Karol and Henderson do not specifically disclose the step of: searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired packet header data; if a matching entry is found, determining if an operation code contained in the matching entry indicates a delete data operation; and if so, generating a delete bit mask that represents data that is deleted in the acquired packet header data and transferring the delete bit mask and the acquired packet header data to the output buffer. Ueno discloses the step of: searching the data structure for an entry containing information associated with a range of addresses that matches a range of addresses associated with the acquired packet header data; if a matching entry is found, determining if an operation code contained in the matching entry indicates a delete data operation; and if so, generating a delete bit mask that represents data that is deleted in the acquired packet header data and transferring the delete bit mask and the acquired packet header data to the output buffer [i.e. the label stack deletion or pop operation] [Figures 4 and 5; and paragraphs 0028, 0032, 0033 and 0035]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Karol, Henderson and Ueno because the teaching of Ueno would enable information or data to be removed correctly to maintain data integrity.

33. As per claims 16, 26 and 32, they are rejected for similar reasons as stated above in claim 5.

34. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karol et al. [US Patent No 6,122,275], Henderson et al. [US Patent Application No 2004/0042490], and further in view of Deforche et al. [US Patent Application No 2005/0232303].

35. As per claim 8, Karol and Henderson do not specifically disclose the step of: searching the data structure for an entry containing information associated with a range of addresses specified by the combination of the length and the source address contained in the entry that matches a range of addresses associated with the acquired packet header data. Deforche discloses the step of: searching the data structure for an entry containing information associated with a range of addresses specified by the combination of the length and the source address contained in the entry that matches a range of addresses associated with the acquired packet header data [paragraphs 0185 and 0186]. It would have been obvious to a person skill in the art at the time the invention was made to combine the teaching of Karol, Henderson and Deforche because the teaching of Deforche would provide a low overhead on processing time and/or low allocation of processing resource [Deforche, paragraphs 0005-0007].

36. As per claim 19, it is rejected for similar reasons as stated above in claim 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dustin Nguyen whose telephone number is (571) 272-3971. The examiner can normally be reached on flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached at (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Dustin Nguyen/
Primary Examiner, Art Unit 2454